REMARKS/ARGUMENTS

In the specification, new paragraph [0000] has been added after the title, RELATED APPLICATIONS. Applicant submits a copy of the Preliminary Amendment filed on September 13, 2004, wherein the right to priority was addressed. Also, per the Examiner's suggestion, minor grammatical changes have been made to the claims.

Claims 26-59 are currently pending in the present application. Claims 1-25 have been canceled without prejudice. Reconsideration of the pending claims is respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claims 26-59 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chen et al. (Biotechnol. Prog. (1998), 14, 5, 667-71) in view of Brook et al. and Summers et al. In order to establish a prima facie case of obviousness, three basic criteria must be met, according to the Manual of Patent Examining Procedure, §706.02(j). These three are repeated as follows. First, there must be some suggestion or motivation, either in the references themselves of in the knowledge generally available to one of ordinary skill in the art, to modify the reference(s) or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references) must teach or suggest all the claim limitations. Applicants submit that the Examiner has not established a prima facie case of obviousness for rejecting claims 26-59.

In regard to the first criterion of obviousness, there is no suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the reference teachings. The Chen et al. reference discloses the removal of mercury from contaminated water by using *E. coli* cells engineered to express metallothionein immobilized on a cross-flow membrane bioreactor. The Brook et al. reference discloses purification of metallothionein-like

metal binding proteins from *Artemia*. The Summers et al. reference discloses metal binding proteins and their production.

As admitted by the Examiner, the Chen et al. reference does not teach or disclose metallothionein from *Artemia*, nor does this reference teach the use of purified protein immobilized on a support and the Brook et al. reference does not teach or disclose the use of the metallothionein in metal recovery devices or processes.

The present invention teaches, among other things, a substantially purified metal binding protein having an amino acid sequence analogous to at least one metal binding protein from a brine shrimp (*Artemia*). Additionally, the binding protein may be on a support.

Based on the Examiner's arguments set forth in the above-noted Office Action, the Examiner has not established a prima facie case of obviousness. "[T]he Examiner must show reason that the skilled artisan, *confronted with the same problems as the inventor and with no knowledge of the claimed invention,* would select the elements from the cited prior art references for combination in the manner claimed." *In re Rouffet,* 47 USPQ2d 1453, 1458 (Fed. Cir. 1998) (emphasis added). The Examiner has not done so in this case. Rather, the Examiner merely states that Summers et al. provides an expectation by disclosing an "equivalence of intracellular and extracellular metal binding proteins for us in removing heavy metals from water." Without more, the Examiner has not established a prima facie case of obviousness.

Moreover, there is no *suggestion or motivation* to combine the above-noted references. The mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills,* 916 f.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no suggestion in the prior are to combine the above-noted references to purportedly obviate applicants present invention. Accordingly, there is no suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings.

In regard to the second criterion of obviousness, there is no reasonable expectation that the combination would be successful. There is no reasonable expectation that one could derive from the three above-noted references that upon their combination one would obtain a substantially purified metal binding protein having an amino acid sequence analogous to at least one metal binding protein from a brine shrimp (*Artemia*). Accordingly, there is no reasonable expectation that the combination would be successful.

In regard to the third criterion of obviousness, the prior art references do not teach or suggest all the claim limitations. They do not teach the above-noted limitations and they do not teach a device for removing at least one metal from a substrate. More specifically, the references to not teach a device for removing at least one metal from a substrate according to claims 33, 37, 41 or 46 respectively or a method for removing at least one metal from a substrate according to claims 47, 54 and 59 respectively. Accordingly, claims 26, 33, 37, 41, 46, 47, 54, 59 are in condition for allowance.

Claims 27-32, 34-36, 38-40, 42-45, 48-53 and 55-58 depend respectively from the above-noted independent claims, and since claims 26, 33, 37, 41, 46, 47, 54, 59 define unobvious patentable subject matter, claims 27-32, 34-36, 38-40, 42-45, 48-53 and 55-58 define patentable subject matter. Furthermore, the prior art of record does not disclose the additional limitations recited in claims 27-32, 34-36, 38-40, 42-45, 48-53 and 55-58. Accordingly, claims 26-59 are in condition for allowance.

All pending claims 26-59 are believed to be in condition for allowance, and a Notice of Allowability is therefore earnestly solicited.

The Commissioner is authorized to charge any fee which may be required in connection with this Amendment to deposit account No. 50-3207.

Respectfully submitted,

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